IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Application No.	:	10/044,195	Confirmation No.	: 9765
Applicant	:	Majid SYED	Tech Cntr/AU	: 2455
Filed	:	October 26, 2001		
Examiner	:	Thuong Nguyen		
Entitled	:	Arbitrator System and Method for National and Local Content Distribution		
Attorney Docket No.	:	011969-0007-999		

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL-BRIEF REQUEST FOR REVIEW

Sir:

Claims 1-39 stand finally rejected. Claims 1, 5-11, 13-19, 23-29 and 31-39 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,549,938 ("Kilkki") in view of U.S. Patent Appln. Pub. No. 2003/0009765 ("Linden"). Claims 2 and 20 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Kilkki in view of Linden and U.S. Pat. No. 5,935,218 to Beyda et al. ("Beyda"). Claims 3-4 and 21-22 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Kilkki in view of Linden, Beyda, and U.S. Appln. Pub. No. 2002/0044567 ("Voit"). Claims 12 and 30 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Kilkki in view of Linden and U.S. Pat. No. 6,782,510 ("Gross").

The rejections of claims 1-39 are now appealed. Review of the final rejection prior to filing an appeal brief is respectfully requested. It is submitted that the rejections fail to establish a *prima facie* case of obviousness and are based upon clear errors of fact and law.

I. One of ordinary skill in the art would not have sought to modify Kilkki's connection-based, multi-node network system to include IBOC radio broadcast transmission, since doing so would have rendered Kilkki's system unsuitable for its intended purpose.

Independent claims 1, 19, 37, 38 and 39 all involve the scheduling of data content for broadcast via in-band on-channel (IBOC) broadcasting. IBOC is a form of terrestrial, digital radio broadcasting. As noted at ¶ 0012 of the published application, IBOC transmission permits the broadcasting of content via digital radio transmission over AM radio frequencies (e.g., 0.525-1.705 MHz) and FM radio frequencies (e.g., 88-108 MHz). The claims require, among other things, determining at a broadcast side relative levels of data content based upon priority indicators, service categories, and service classes of said data content, and sequencing the data content for broadcast based upon those relative levels.

The Office alleges that newly cited Kilkki discloses all of the claim limitations except broadcasting data content via IBOC broadcasting based upon the required sequencing, and cites Linden at ¶¶ 0006 and 0081 for such. The Office alleges that it would have been obvious to modify Kilkki's system to support IBOC broadcasting in order to "dynamically alter[] the bandwidth allocated to a particular system channel." Office Action at p. 3. Applicants respectfully disagree.

Kilkki is directed to prioritizing packets of information for multicast transmission in connection-based, multi-node networks, such as local area networks (LANs) and the Internet. Unlike terrestrial radio broadcasting, where radio waves are broadcast whether or not receivers are tuned in, Kilkki's system requires connections between transmitting nodes and specific receiving devices. In Kilkki's multi-node network:

> These <u>nodes represent</u> network data communications elements such as <u>routers, switches and multiplexers</u>. However, as will be appreciated by those skilled in the art, the present invention may likewise be implemented in various <u>multi-node network structures such as multipoint, star, ring, loop and mesh network topologies</u> used in networks ranging from <u>local area networks</u> (LAN) to proliferative global area networks (GAN) such as <u>the Internet</u>. (Col. 7, lines 57-66, emphasis added.)

Kilkki's system involves two-way communication -- users not only receive data but also transmit data over the connection-based network to a specific destination, unlike a radio broadcast where information is sent in only one direction, from a broadcaster to any number of unidentified recipients. *See, e.g.,* col. 7, lines 26-28 ("[T]he user 20 is permitted to communicate information to a desired destination 36 via the network 30.") Moreover, the system of Kilkki is directed toward managing network traffic (e.g., col. 1, lines 40-45), a concern that is completely lacking in the radio broadcast context where information is transmitted the same way regardless of whether it reaches one or millions of radio receivers.

In Kilkki's system, the intended purpose is to communicate data cells or data packets such that <u>the nodes</u> in the multi-node network make the scheduling and buffering decisions based solely upon two external considerations: the priority level and the service class of each cell/packet. *See* Kilkki at col. 13, lines 46 – col. 14, line 8, and FIGS. 2 and 7. In other words, as packets are received at a given node, that <u>node</u> makes scheduling and buffering decisions for each packet based upon its priority level and service class as "a function of the congestion" at that node. Col. 13, line 23. That <u>node</u> then sends packets out to other nodes in a suitable order. Other nodes then make their scheduling and buffering decisions in order to send the cells/packets to their destinations. *See* col. 7, lines 41-56.

Linden is directed to an on-demand radio broadcast system in which receivers can store and playback received programs. Linden ¶¶ 0026 and 0004, Abstract. Linden's alleged new contribution is to broadcast program segments in high-priority and low-priority time slices to facilitate receipt. Linden Abstract. Linden states that "on demand" means simply that "receivers have local program storage and playback capability" and that "'on-demand' refers to receiver operation, not to transmission facility operation." Linden ¶¶ 0004 and 0013. Linden's receivers do not transmit content, and there is nothing in Linden to suggest that the radio broadcasting contemplated therein is anything other than one-way broadcasting.

With that understanding, one skilled in the art would not have sought to modify Kilkki's system "to support broadcasting IBOC" as suggested by the Office, since doing so would have rendered Kilkki's system <u>unsuitable for its intended purpose</u> of requiring <u>nodes</u> to make the scheduling and buffering decisions for communicating cells/packets. Kilkki's system involves routers, switches, multiplexers, and two-way communication using addressed data packets in a multi-node, connection-based network. In Kilkki's system, it is intended that the <u>nodes themselves</u> make the scheduling and buffering decisions for individual data packets <u>based upon priority level and service class</u>. In this way, the system can route packets based on the amount of traffic in the network. This mode of communication is wholly different from one-way broadcasting over dedicated AM and FM broadcast frequencies for IBOC broadcasting occurs where there is no network traffic and where radio waves are broadcast the same way regardless of how many receivers are tuned in. The network-based concept of "traffic" is meaningless in the context of a radio broadcast system. Moreover, there are no <u>nodes</u> in IBOC broadcasting system that could make the scheduling and buffering decisions that are necessarily made by the nodes in Kilkki's system. Transforming Kilkki's system to support IBOC broadcasting, where there are no nodes to make scheduling and buffering decisions, would defeat Kilkki's intended purpose of having <u>nodes</u> make the scheduling and buffering decisions for cell/packet transmission.

II. The rejections do not make out a *prima facie* case of obviousness at least because Kilkki teaches away from using dynamic bandwidth allocation, which is the basis for the Offices proposed hypothetical modification.

The Office alleges that it would have been obvious to modify Kilkki's system to support IBOC broadcasting "to dynamically alter the bandwidth allocated to a particular system channel." (Office Action at p. 3.) Kilkki, in fact, teaches away from such.

Kilkki describes the prior art asynchronous transfer mode (ATM) network architecture (col. 1, line 46 – col. 3, line 8). ATM included various service categories for

data transmission, such as a constant bit rate (CBR) category, a real-time variable bit rate (rt-VBR) category, a non-real time variable bit rate (nrt-VBR) category, an unspecified bit rate (UBR) category, and an available bit rate (ABR) category (col. 1, line 65 – col. 2, line 3). Kilkki uses the terminology "service classes" to mean the same thing as "service categories." *See* col. 1, lines 57-59 ("A conventional ATM service architecture typically provides a number of predfined quality of service classes, often referred to as service categories.") The ABR category of the ATM architecture "provides for the allocation of available bandwidth to users by controlling the rate of traffic through the use of a feedback mechanism." (Kilkki at col. 2, lines 35-38.) Thus, the prior art ATM architecture <u>already provided for dynamic allocation of bandwidth</u> via the ABR category as well as via the rt-VBR category, which facially involves "real-time variable bit rate" functionality.

Kilkki discloses that the ATM architecture suffered from complexity and required a complex traffic management scheme that includes a prodigious number of traffic management conditions, and required a highly complex billing scheme (col. 2, line 45 – col. 3, line 8). In view of that complexity, Kilkki presents a different approach for communicating data cells/packets in a multi-node network – namely, scheduling and buffering of data cells/packets at <u>nodes</u> in the network depending solely upon two external considerations: the priority level and the service class of each cell/packet. Kilkki explicitly states:

> As described hereinabove, each cell received at a core node 152 has associated with it a priority level . . .[and] a service class indicator which identifies the cell as containing real-time or non-real-time payload. The cell scheduling and buffering unit 150 provides for efficient processing of both real-time and non-real-time cells <u>based solely on two external considerations: the priority level (i.e., drop preference) and the service class status of each cell</u>. (Col. 13, lines 46-57, emphasis added.)

Each data cell/packet has a priority level and a service class, and this is what the node uses to schedule/buffer data cells/packets. The priority level is based upon a nominal bit rate (NBR) chosen by the user and an actual or measured bit rate (MBR) (col. 6, lines 20-45; col. 7, lines 28-40). Data cells/packets are accepted by a node for transmission to another node or destination, or are discarded to be buffered for later transmission based upon the priority level and buffering capacity of the node (col. 7, lines 41-56; col. 13, lines 58-67). Cells/packets having a real-time status designation have transmission preference over those having a non-real-time status designation (col. 11, lines 1-4).

Kilkki's approach is thus much simpler than ATM and is <u>devoid of</u> a real-time variable bit rate (rt-VBR) service class/category or an available bit rate (ABR) service

class/category. Thus, Kilkki's approach <u>purposefully avoids dynamic bandwidth allocation</u> of the prior art ATM architecture in favor of a simpler approach that schedules and buffers cell based upon (1) data priority level and (2) data service class. Kilkki's service class designations provide simple transmission preference for cells designated "real-time" over those designated "non-real-time," but there is no dynamic bandwith allocation. As such, Kilkki plainly <u>teaches away</u> from the Office's modification. Moreover, if one were seeking dynamic bandwidth allocation to add to Kilkki's system, one would not need to look beyond ATM described in the Background section of Kilkki itself to find it, as explained above. There would be no need to look to Linden for any alleged insights into such a modification.

III. Even if the hypothetical combination were made, the resulting system would not possess the combination of features claimed.
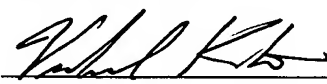
The independent claims require, among other things, determining relative levels of data content based upon "priority indicators, service categories, and service classes" of data content, *i.e.*, <u>three</u> separate aspects of the data content. The Office alleges that Kilkki discloses such. Office Action at pp. 2, 3. That allegation is erroneous. Kilkki uses the terminology "service classes" to mean the same thing as "service categories" – they are not different from one another. *See* col. 1, lines 57-59 ("A conventional ATM service architecture typically provides a number of predfined quality of service classes, often referred to as service categories.") Indeed, Kilkki explicitly states that the scheduling and buffering of his approach is based solely upon <u>two</u> external considerations, not <u>three</u>: "The cell scheduling and buffering unit 150 provides for efficient processing of both real-time and non-real-time cells based solely on two external considerations: the priority level (i.e., drop preference) and the service class status of each cell." Col. 13, lines 46-57. As such, even if hypothetically combined, Kilkki and Linden would not yield the subject matter claimed, and in particular, would not yield the three separate aspects of "priority indicators, service categories, and service classes in the manner claimed. The rejection is therefore flawed.

V. Conclusion

For at least the reasons given above, it is respectfully requested that the rejections be withdrawn and that a Notice of Allowance be issued.

Respectfully submitted,

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By:

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